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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/358,206	07/21/1999	JOHN B. CARROLL	WAB-97090	1249

7590 10/29/2002

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EXAMINER

PEREZ, GUILLERMO

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 10/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/358,206

Applicant(s)

CARROLL, JOHN B.

Examiner

Guillermo Perez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-7, 9, 11-12, 14-15, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oudet et al. (U.S. Pat. No. 5, 559, 378) in view of Fiegel et al. (U.S. Pat. No. 5, 826, 952) and further in view of Noltner (DE 2355728A).

Oudet et al. substantially teach the claimed invention except that it does not show an electric power generator comprising an O-ring in a groove formed on the outer surface of the first portion of the piston to prevent loss of air between the piston and the cylinder. Oudet et al. do not disclose that an emf is generated in the electric coil, so that an external circuit connected to the electric coil receives electric power from the electric coil. Oudet et al. do not disclose that the inlet flow path includes an air filter to exclude foreign material from the cylinder. Oudet et al. do not disclose that the inlet flow path includes a choke to control an impedance of the inlet flow path.

Oudet et al. do not disclose that the cylinder extension have an inner surface having a transverse dimension greater than a transverse dimension of the cylinder. Oudet et al. do not disclose that at least a portion of the piston extension contacts at

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least a portion of the cylinder extension to provide positional constraint to the piston. Oudet et al. do not disclose that the portion of the piston extension contacting at least a portion of the cylinder extension is an outer surface of the piston extension and the portion of the cylinder extension is an inner surface of the cylinder extension. Oudet et al. do not disclose that the piston extension has at least one longitudinal air passage to carry air to an end of the piston adjacent the end closure, the exhaust being connected to the end closure. Oudet et al. do not disclose that the exhaust passage includes an electrically actuated shutoff valve to prevent air flow through the generator, thereby turning off the generator.

Fiegel et al. disclose sealing means (an O-ring in a groove formed on the outer surface of the first portion of the piston according to 35 U.S.C. 112, Sixth Paragraph) disposed on at least one of an outer surface of the first portion of the piston (22) and an inner surface of the cylinder to prevent loss of fluid between the piston (22) and the cylinder and permit fluid pressure in the cylinder to increase when the first portion of the piston (22) is disposed within the cylinder. Fiegel et al. disclose that the sealing means is an O-ring in a groove formed on the outer surface of the first portion of the piston (22). Fiegel et al. disclose that the inlet flowpath includes a fluid filter (62) for excluding foreign material from the cylinder. Fiegel et al. disclose that the cylinder extension having an inner surface having a transverse dimension greater than a transverse dimension of the cylinder.

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Fiegel et al. disclose that at least a portion of the piston extension (37 in figure 3) contacting at least a portion of the cylinder extension to provide positional constraint to the piston (22). Fiegel et al. disclose that the portion of the piston extension (63 in figure 4) contacting at least a portion of the cylinder extension is an outer surface of the piston extension (63) and the portion of the cylinder extension is an inner surface of the cylinder extension. Fiegel et al. disclose that the piston extension (37) has at least one longitudinal fluid passage (65) to carry fluid to an end of the piston (22) adjacent the end closure (32,35), the exhaust (35) being connected to the end closure (32). Fiegel et al. disclose that the passage (65) includes an electrically actuated shutoff valve (46-49) to prevent fluid flow through the actuator, thereby turning off the actuator. The invention of Fiegel et al. has the purpose of increasing efficiency and reducing the dimensions and weight of the embodiment.

Noltner disclose an electric power generator whereby an emf is generated in the electric coil (5), so that an external circuit connected to the electric coil (5) receives electric power from the electric coil (5). Noltner disclose that the inlet flowpath includes a choke (10,11) to control an impedance of the inlet flowpath. Noltner's invention has the purpose of showing that the electromagnetic piston-cylinder configuration can be applied in pumps, compressors, and generators which can be either hydraulically, pneumatically or thermally actuated.

It would have been obvious at the time the invention was made to modify the embodiment of Oudet et al. and provide it with the sealing means, filter, cylinder and

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piston configurations, longitudinal fluid passage, electrically actuated shutoff valves, and operate the embodiment as a generator as disclosed by Fiegel et al. and Noltner for the purpose of increasing efficiency and reducing the dimensions and weight of the embodiment and provide the specified electric power source configuration.

The examiner takes Official Notice of the reversibility of electric generators and electric motors in the dynamoelectric art and the selection of any of these known embodiments to provide either electric power or mechanical force, respectively would be within the level of ordinary skill in the art. (Electric Motors and Motor Controls; Jeff Keljik; 1995; Delmar Publishers; pages 139-142)

2. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oudet et al. in view of Fiegel et al. and further in view of Noltner as applied to claim 7 above, and further in view of Higham et al. (U. S. Pat. 5,146,124).

Oudet et al., Fiegel et al. and Noltner substantially teaches the claimed invention except that it does not show that at least one of the outer surface of the piston extension and the inner surface of the cylinder extension is at least one of made from and coated with a low friction material.

Higham et al. disclose that at least one of the outer surface of the piston extension (10) and the inner surface of the cylinder extension (560) is at least one of made from and coated with a low friction material (532). The invention of Higham et al. has the purpose of reducing wear and friction of the contacting surfaces.

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It would have been obvious at the time the invention was made to modify the embodiment of Oudet et al., Fiegel et al. and Noltner and provide it with the low friction material disclosed by Higham et al. for the purpose of reducing wear and friction of the contacting surfaces.

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oudet et al. in view of Fiegel et al. and further in view of Noltner as applied to claim 9 above, and further in view of Meyer (U. S. Pat. 4,352,645).

Oudet et al., Fiegel et al. and Noltner substantially teaches the claimed invention except that it does not show that the at least one longitudinal air passage is a longitudinal slot formed in the outer surface of the piston extension.

Meyer discloses that the at least one longitudinal fluid passage (31) is a longitudinal slot formed in the outer surface of the piston extension (19). Meyer's invention has the purpose of providing a fluid discharge between two chambers of the embodiment.

It would have been obvious at the time the invention was made to modify the embodiment of Oudet et al., Fiegel et al. and Noltner and provide it with the longitudinal slot disclosed by Meyer for the purpose of providing a fluid discharge between two chambers of the embodiment.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oudet et al. in view of Fiegel et al. and further in view of Noltner as applied to claim 5 above, and further in view of Park (U. S. Pat. 5,451,727).

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Oudet et al., Fiegel et al. and Noltner substantially teaches the claimed invention except that it does not show that the exhaust passage includes a muffler to reduce noise released from the generator.

Park discloses that the exhaust passage includes a muffler (31) to reduce noise released from the actuator. Park's invention has the purpose of diminishing noise and heat transfer thus improving the performance of the embodiment.

It would have been obvious at the time the invention was made to modify the embodiment of Oudet et al., Fiegel et al. and Noltner and provide it with the muffler disclosed by Park for the purpose of diminishing noise and heat transfer thus improving the performance of the embodiment.

5. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oudet et al. in view of Fiegel et al. and further in view of Noltner as applied to claim 1 above, and further in view of Konotchick (U. S. Pat. 5,347,186).

Oudet et al., Fiegel et al. and Noltner substantially teaches the claimed invention except that it does not show that the at least one electric coil is connected to a rectifier to supply DC electric power. Neither Oudet et al., Fiegel et al. nor Noltner disclose that the rectifier is a full bridge rectifier to supply DC electric power whenever a net flux through the at least one electric coil is changing.

Konotchick discloses that the at least one electric coil (70-73) is connected to a rectifier (figure 5b) to supply DC electric power. Konotchick discloses that the rectifier is a full bridge rectifier to supply DC electric power whenever a net flux through the at least

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one electric coil is changing. Konotchick's invention has the purpose of providing electrical regulation and the capability to handle small power surges.

It would have been obvious at the time the invention was made to modify the embodiment of Oudet et al., Fiegel et al. and Noltner and provide it with the rectifier disclosed by Konotchick for the purpose of providing electrical regulation and the capability to handle small power surges.

6. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oudet et al. in view of Noltner.

Oudet et al. substantially teaches the claimed invention except that it does not show an electric power generator whereby an emf is generated in the electric coil, so that an external circuit connected to the electric coil receives electric power from the electric coil.

Noltner disclose an electric power generator whereby an emf is generated in the electric coil, so that an external circuit connected to the electric coil receives electric power from the electric coil. Noltner's invention has the purpose of showing that the electromagnetic piston-cylinder configuration can be applied in pumps, compressors, and generators which can be either hydraulically, pneumatically or thermally actuated.

It would have been obvious at the time the invention was made to modify the embodiment of Oudet et al., and Noltner and provide it with the capability of operating the embodiment as a generator as disclosed by Noltner for the purpose of providing the

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electromagnetic piston-cylinder configuration application in generators which can be either hydraulically, pneumatically or thermally actuated.

Response to Arguments

Applicant's arguments filed July 23, 2002 have been fully considered but they are not persuasive.

In response to Applicant's remark that Oudet et al. requires major changes to make it work as a pneumatic generator, it must be noted that the only changes required from the embodiment in claim 1 is the provision of an o-ring type of seal on the piston, and the reversal of the functionality of the dynamoelectric machine. Oudet et al. provides a seal (between the piston and the cylinder) that prevents air passage from the chamber 50 to the chamber 93. Without a seal in this area the dynamoelectric machine of Oudet et al. would not operate. The only difference between Oudet et al. and claim 1 is the type of seal being used. Oudet et al. even acknowledges the use of o-ring type of seals and the groove formation, but not on the surface of the piston as claimed. Fiegel discloses the use of this type of seal to separate the pressure forces between two different chambers at different pressures as well as Oudet et al. do at a different location of its embodiment. No major change is required in Oudet et al. when the o-ring seal is used on the outer surface of the piston as taught by Fiegel.

It is well known in the art that a motor is the reverse process of a generator (Electric Motors and Motor Controls; Jeff Keljik; 1995; Delmar Publishers; pages 139-

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142). Oudet and Fiegel present the structural configuration of claim 1, but being used as actuators instead of generators.

A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "only one biasing means" emphasis added) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "one biasing means which is not positioned in the first cylinder" emphasis added) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "the present invention has only one cylinder" emphasis added) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to Applicant's argument that Oudet et al., includes additional structure not required by Applicant's invention (i.e. "Oudet et al. require two inlet flow paths"), it must be noted that Oudet et al. discloses the invention as claimed. The fact that it discloses additional structure not claimed is irrelevant.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "only one inlet flow path" emphasis added) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to Applicant remark that Oudet et al. do not disclose a piston with a magnetic moment, it must be noted that a magnetic moment is "*a vector quantity that is a measure of the torque exerted on a magnetic system (as a bar magnet or dipole) when placed in a magnetic field and that for a magnet is the product of the distance between its poles and the strength of either pole*" Merriam-Webster's Collegiate

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Dictionary Tenth Edition. Oudet et al. disclose that the piston has magnets (10 and 11 column 3, lines 32-34) which by definition have a magnetic moment. The pistons in Noltner and Oudet are equivalents in the magnetic moment concept.

In response to Applicant's argument that Oudet et al., includes additional structure not required by Applicant's invention (i.e. "the three poles"), it must be noted that Oudet et al. discloses the invention as claimed. The fact that it discloses additional structure not claimed is irrelevant.

In response to Applicant's remark that an engineer would not look at automotive brakes to modify railway applications, it must be noted that both Oudet and Fiegel are disclosing dynamoelectric machines capable of being used in a wide variety of technological applications. Noltner is clear evidence of the use of dynamoelectric machines of this type in a wide variety of applications. Noltner intend to use its embodiment in pumps (Fiegel and Oudet show a brake pump), generators (as claimed), and compressors (as in Higham et al.). Air tightness is a necessity in this type of piston-cylinder pneumatic type of dynamoelectric machines. Oudet and Fiegel describe the necessity of seal (o-ring) to accomplish the proper operation of their devices. The same rationale has been applied to all the art rejections.

In response to Applicants remark that the Park reference is hardly applicable to power generators, it must be noted that the muffler in Park is being provided to reduce noise in the reciprocating type of compressor, and as shown by Noltner, this type of dynamoelectric machines are also employed as generators.

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The invention as claimed does not provide new and/or unobvious features to the prior art.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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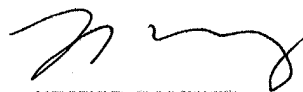
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305 3432 for regular communications and (703) 305 3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

Guillermo Perez
October 22, 2002



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